

## CLAIMS

What is claimed is:

- 1           1.     A method of passivating an integrated circuit (IC), the method  
2 comprising:  
3                 forming an insulating layer on said IC;  
4                 forming an adhesion layer on a surface of said insulating layer by  
5 treating said surface of said insulating layer with a gas; and,  
6                 forming a first passivation layer upon said adhesion layer, said first  
7 passivation layer and said gas including at least one common chemical element.
- 8           2.     The method of claim 1 further comprising forming a second  
9 passivation layer upon said first passivation layer.
- 10          3.     The method of claim 1, wherein said insulating layer includes silicon  
11 dioxide.
- 12          4.     The method of claim 1 wherein said gas reacts with said surface of said  
13 insulating layer.
- 14          5.     The method of claim 1, wherein said gas includes nitrous oxide (N<sub>2</sub>O).
- 15          6.     The method of claim 1, wherein said gas includes one of oxygen and  
16 nitrogen (N), and oxygen and ammonia (NH<sub>3</sub>), and oxygen and argon (Ar), and  
17 ozone (O<sub>3</sub>) and argon.
- 18          7.     The method of claim 5, wherein said adhesion layer includes silicon  
19 oxynitride (Si<sub>x</sub>O<sub>y</sub>N<sub>z</sub>).

1           8.     The method of claim 7, wherein said first passivation layer includes  
2 silicon nitride.

1           9.     The method of claim 1, wherein said first passivation layer is deposited  
2 upon said adhesion layer by way of a process of plasma enhanced chemical vapor  
3 deposition (PECVD).

1           10.    The method of claim 8, wherein said at least one chemical element  
2 includes nitrogen (N).

1           11.    The method of claim 2 wherein said second passivation layer includes  
2 polyimide.

1           12.    A method of passivating an integrated circuit (IC), the method  
2 comprising:

3                   forming an oxide layer on said IC;

4                   forming an adhesion layer on a surface of said oxide layer by treating  
5 said surface of said oxide layer with nitrous oxide gas; and

6                   forming a first passivation layer of silicon nitride upon said adhesion  
7 layer.

1           13.    The method of claim 12 further comprising forming a second  
2 passivation layer upon said first passivation layer.

1           14.    The method of claim 12, wherein said adhesion layer includes silicon  
2 oxynitride.

1           15.    The method of claim 12, wherein said first passivation layer of silicon  
2 nitride is deposited upon said adhesion layer by way of a process of plasma enhanced  
3 chemical vapor deposition (PECVD).

1           16.    The method of claim 13, wherein said second passivation layer  
2 includes polyimide.

1           17.    An integrated circuit (IC) comprising:  
2                    an insulating layer;  
3                    an adhesion layer formed over said insulating layer; and,  
4                    a first passivation layer formed on said adhesion layer, said first  
5 passivation layer and said adhesion layer including at least one common chemical  
6 element.

1           18.    The integrated circuit of claim 17 further comprising a second  
2 passivation layer formed upon said first passivation layer.

1           19.    The integrated circuit of claim 17 wherein said insulating layer  
2 includes silicon dioxide (SiO<sub>2</sub>).

1           20.    The integrated circuit of claim 17 wherein said adhesion layer includes  
2 silicon oxynitride.

1           21.    The integrated circuit of claim 17 wherein said first passivation layer  
2 includes silicon nitride (Si<sub>3</sub>N<sub>4</sub>).

1           22.    The integrated circuit of claim 18 wherein said second passivation layer  
2 includes polyimide.

1           23.    An integrated circuit comprising:  
2                    a silicon dioxide insulating layer;  
3                    a silicon oxynitride adhesion layer formed over said silicon dioxide  
4 insulating layer; and,

5 a silicon nitride hard passivation layer formed on said silicon  
6 oxynitride adhesion layer.

1 24. The integrated circuit passivation layer of claim 23 further comprising  
2 a photodefinable polyimide soft passivation layer formed on said silicon nitride  
3 hard passivation layer.

1 25. A method of passivating a trench on a semiconductor substrate,  
2 comprising the steps of:  
3 forming at least one trench;  
4 forming an insulating layer on said at least one trench;  
5 forming an adhesion layer on a surface of said insulating layer by treating said  
6 surface of said insulating layer with a gas; and,  
7 forming a first passivation layer upon said adhesion layer, said first  
passivation layer and said gas including at least one common chemical element.

1 26. The method of claim 25, wherein said gas reacts with said surface of  
2 said insulating layer.

1 27. The method of claim 25, wherein said gas includes nitrous oxide  
2 (N<sub>2</sub>O).

1 28. A method of passivating spacers, the method comprising the steps of:  
2 forming at least one spacer;  
3 forming an insulating layer on said at least one spacer;  
4 forming an adhesion layer on a surface of said insulating layer by treating said  
5 surface of said insulating layer with a gas; and,  
6 forming a first passivation layer upon said adhesion layer, said first  
7 passivation layer and said gas including at least one common chemical element.

1           29.    The method of claim 28, wherein said gas reacts with said surface of  
2   said insulating layer.

1           30.    The method of claim 28, wherein said gas includes nitrous oxide  
2   (N<sub>2</sub>O).

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